

## Two new species of *Nereis* (Polychaeta: Nereididae) from Todos Santos Bay, Ensenada, Baja California, México

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**Abstract.**—The nereidid fauna of Todos Santos Bay was studied. In this paper we describe two species of *Nereis* that are new to science. *Nereis fauchaldi* belongs to the species group with the dorsal ligule expanded in posterior parapodia, and homogomph falcigers with smooth blades. *Nereis imajimai* belongs to the species group with the dorsal ligule short in posterior parapodia, and homogomph falcigers with short and dentate blades.

Nereididae is one of the polychaete families with a broad distribution. Members of this family are found at all latitudes and from the intertidal to abyssal depths; however, they are found more frequently in shelf depths. Terminology of parapodial structures follows Hutchings & Reid (1990).

Baja California, Mexico, is a state with two different coasts bordering two different water masses, the Gulf of California (Cortes Sea) on the eastern side, and the Pacific Ocean on the western side. Nereidid polychaetes have been little studied on the Pacific side. Only a few species have been reported by Hartman (1952, 1963), Treadwell (1923), Berkeley & Berkeley (1958) and Reish (1963). In the present work we describe two new species of *Nereis* from Todos Santos Bay, located in the Pacific coast of Baja California, 100 km south of the U.S.A.-Mexico border. The study is based on samples from 47 stations collected between 31°40' to 31°55'N and 116°36' to 116°50'W, carried out by the O/V *Francisco de Ulloa* from CICESE.

The material reported was obtained with a Van Veen grab (0.1 m<sup>2</sup>), during the cruise "BAHIA-10-94" off the Ensenada coast in October 1994. Type specimens are depos-

ited in the Polychaetological Collection of the Facultad de Ciencias Biológicas, Universidad Autónoma de Nuevo León, México (UANL); others are in the Centro de Investigación Científica y de Educación Superior de Ensenada, B.C., México (CICESE).

### *Nereis fauchaldi*, new species Fig. 1a-f

**Material examined.**—Stn. 26 (1) (Holotype, UANL 3945), [116°44'N, 31°47'W], 210 m depth.

**Additional material.**—Western coast of Baja California, Sebastian Vizcaino Bay, dredge (6 Jul 1989) Stn. F-10, (1) [28°07'N, 115°00'W], 85 m depth (UANL 3946); Shrimp trawl (6 Jul 1989) Stn. 2 (1) [28°47'N, 114°34'W], 84 m depth (UANL 3947).

**Description.**—The holotype is an incomplete specimen, without evident pigmentation pattern, 12 mm long, 1.5 mm wide including parapodia, with 40 setigers. Prostomium pentagonal, two digitate frontal antennae, shorter than palps. Eyes large, anterior pair oval, posterior pair round. Palps biarticulate, thin, palpostyles conical. Peristomium longer than next two seg-

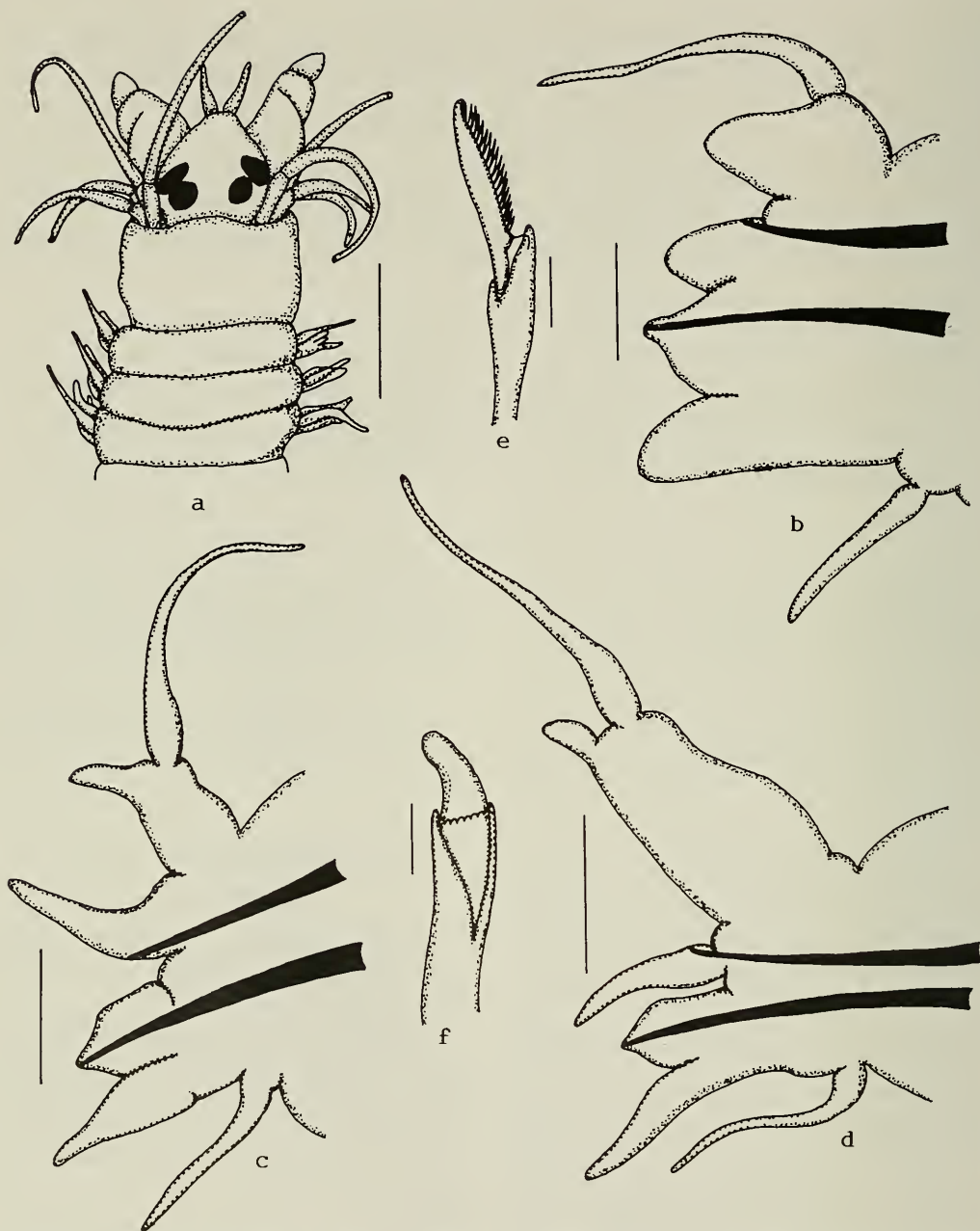


Fig. 1. *Nereis fauchaldi*, new species: a, anterior end, dorsal view; b, 9th setiger, anterior view; c, 26th setiger, anterior view; d, 39th setiger, anterior view; e, neuropodial heterogomph falciger of setiger 9; f, notopodial homogomph falciger of setiger 28. Scale bars: a = 1 mm; b-d = 150  $\mu$ m; e-f = 15  $\mu$ m.

ments, with four short tentacular cirri, longest reaching setiger 3 (Fig. 1a).

Pharynx with brown jaws, each with 6 teeth; paragnaths as: I = 2 cones; II = 12

cones in 2 oblique rows; III = 14 cones in oval group; IV = 20 cones in crescent shape; V = 0; VI = 8 cones in circle; VII-VIII = 70 small cones in 3 rows near oral

aperture, and 7 larger cones in one distal row.

Parapodia of first two setigers uniramous, thereafter biramous. Anterior notopodia with dorsal and median ligule distally conical, superior lobe rounded. Neuropodium with postsetal lobe short, end mammiliform, ventral ligule distally rounded. Dorsal cirri inserted medially on dorsal ligule; ventral cirri inserted basally (Fig. 1b). Median and posterior parapodia with long dorsal ligules. Median and ventral ligule elongate, narrow, postsetal lobes expanded distally. Dorsal cirri inserted subdistally, ventral cirri inserted basally, shorter than dorsal cirri (Fig. 1c, d).

Anterior notosetae slender homogomph spinigers in supracicular position. Supracicular neurosetae similar to notosetae, and a single heterogomph falciger; infracicular setae heterogomph spinigers and falcigers, each falciger with long blade and thin, moderately long serrations, distal part of blade strongly bent (Fig. 1e). Median and posterior supracicular notosetae homogomph falcigers, starting in setiger 14; blade short and distally blunt, without serrations; shaft with crenulate distal membrane (Fig. 1f). Supracicular neurosetae of median parapodia homogomph spinigers and heterogomph falcigers; infracicular setae heterogomph spinigers. Posterior neuropodia each with one heterogomph falciger in supracicular position; and one heterogomph falciger and spiniger in infracicular position.

Pygidium unknown.

*Remarks.*—*Nereis fauchaldi*, new species, belongs to the group of species characterized by having posterior parapodia with greatly expanded dorsal ligules. This group includes *N. angelensis* Fauchald, 1972, *N. anoculis* Hartman, 1960, *N. anoculopsis* Fauchald, 1972, *N. fossae* Fauchald, 1972, *N. heterocirrata* Treadwell, 1931, *N. ligulata* Hilbig, 1992, *N. nichollsi* Kott, 1951, *N. piscesae* Blake & Hilbig, 1990, *N. profundus* Kirkegaard, 1959, *N. sandersi* Blake, 1985 and *N. vexillosa* Gru-

be, 1851. All of these species, except *N. vexillosa*, have been found in deep waters. These species may be separated into two groups: species with dentate homogomph falcigers; and those with smooth homogomph falcigers. *Nereis fauchaldi*, new species, belongs to the second group, together with *N. angelensis* and *N. fossae*. These species differ in paragnath arrangement and insertion of dorsal cirri. The types of *Nereis angelensis* Fauchald, 1972: holotype (LACM-AHF 1060) and *Nereis fossae* Fauchald, 1972: holotype (LACM-AHF 1058), paratypes (LACM-AHF 1059) (12 specimens) were reviewed. *Nereis angelensis* has the following paragnath arrangement: Area I = 2 in line, II = 17 in 3 irregular rows, III = 24 in 4–5 rows, IV = 18–20 in crescent shape, V = 0, VI = 3 in line right side, 3 in triangle left side, VII–VIII = 35 in one irregular line; *N. fossae* has Area I = 2 in line, II = 15 in 2 rows, III = 28 in oval shape, IV = 18 in crescent shape, V = 0, VI = 3 in line, VII–VIII = 6 in one irregular line; *N. fauchaldi* has Area I = 2 cones, II = 12 cones in 2 rows, III = 14 cones in oval group, IV = 20 cones in crescent shape, V = 0, VI = 8 cones in group, VII–VIII = 70 small cones in 3 rows near the oral aperture, and 7 larger cones on one distal row. *Nereis angelensis* has dorsal cirri inserted basally, while *N. fossae* has dorsal cirri inserted medially, and *N. fauchaldi* has dorsal cirri inserted subdistally.

*Etymology.*—The species is named after Kristian Fauchald in recognition of his valuable contributions to the systematics of the polychaetes of western Mexico.

*Distribution.*—*Nereis fauchaldi* is known from its type locality, Todos Santos Bay, Baja California, Mexico, and from Sebastian Vizcaino Bay, western Baja California.

*Nereis imajimai*, new species

Fig. 2a–g

*Material examined.*—Stn. 1, [116°38'N, 31°50'W], 25 m depth, (8 specimens) (UANL 3948), Stn. 4, [116°39'N,

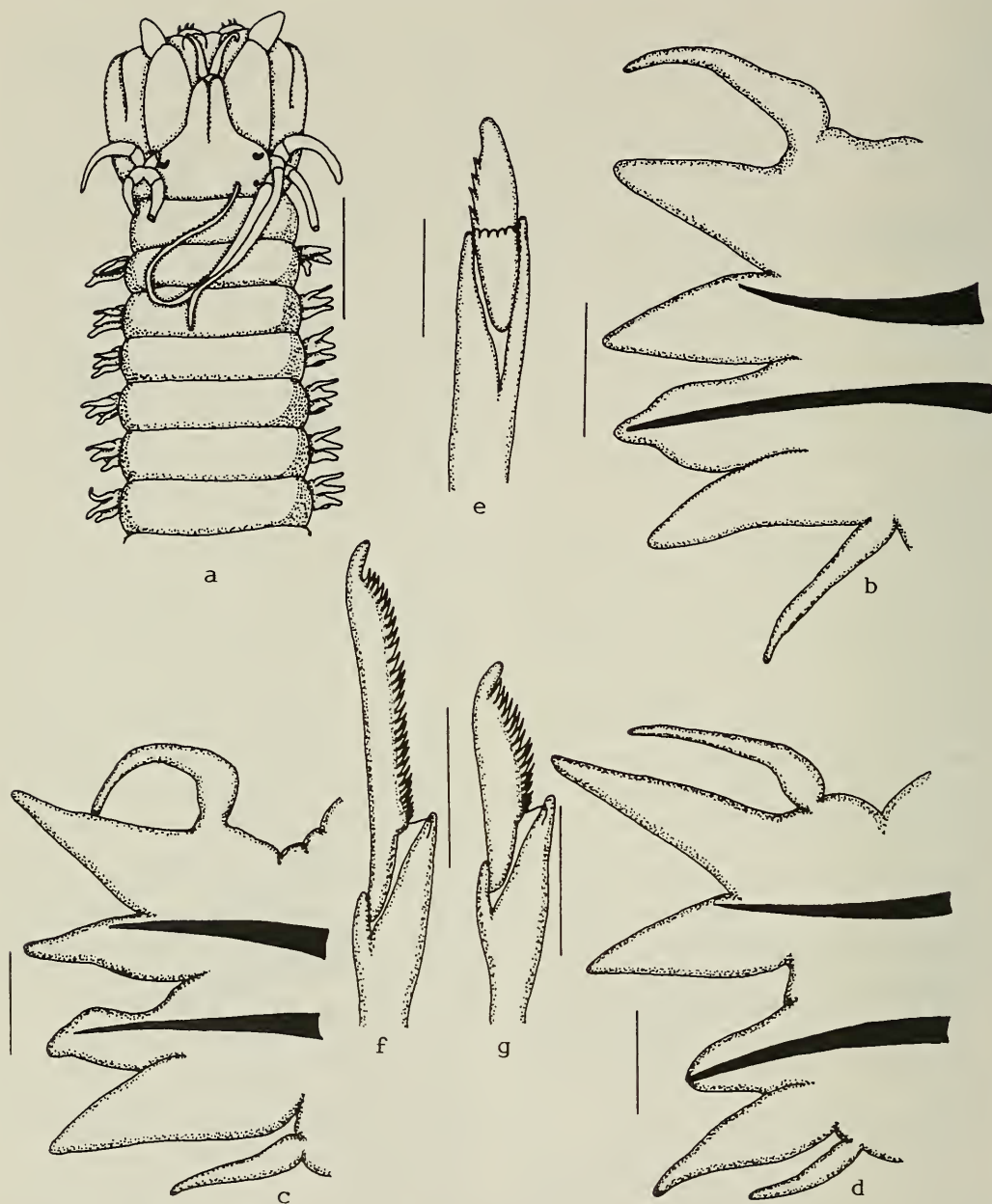


Fig. 2. *Nereis imajimai*, new species: a, anterior end, dorsal view; b, 10th setiger, anterior view; c, 30th setiger, anterior view; d, 53rd setiger, anterior view; e, notopodial homogomph falciger of setiger 30; f, neuro-podial heterogomph falciger in upper infracicular position of setiger 30; g, neuro-podial heterogomph falciger in middle infracicular position of setiger 30. Scale bars: a = 1 mm; b-d = 150  $\mu$ m; e = 15  $\mu$ m; f-g = 10  $\mu$ m.

31°47'W], 20 m depth, (3 specimens) (UANL 3951), Stn. 13, [116°40'N, 31°50'W], 24 m depth, (10 specimens) (CICESE), Stn. 14, [117°40'N, 31°51'W], 19

m depth, (4 specimens) (CICESE), Stn. 22, [116°42'N, 31°46'W], 51 m depth, (1 specimen) (CICESE), Stn. 26 (Holotype, UANL 0000), [116°44'N, 31°47'W], 210 m depth.

*Additional material.*—West coast of Baja California, 4 Sep 1990, stn. H-8, [27°56'N, 114°54'W], 66 m depth (2 specimens) (UANL 3981).

*Description.*—The holotype is an incomplete specimen, yellowish in color, 15 mm long and 1 mm wide including setae, with 54 setigers. Prostomium longer than wide, with pair of cirriform antennae. Eyes small, anterior pair reniform, posterior pair round. Biarticulated palps, with conical palpostyles. Tentacular ring slightly longer than setiger 1, four pairs of tentacular cirri, longest reaching posteriorly to setiger 5 (Fig. 2a).

Pharynx with pair of brown jaws, and with six teeth; paragnaths as: Area I = 0, II = 2 right, 3 left in one row, III = 6 in group, IV = 6 right, 9 left in crescent shape, V = 0, VI = 3 in triangle, VII–VIII = 55 in 3–4 rows.

Setigers 1–2 uniramous, biramous thereafter. Anterior notopodia with dorsal and median ligules triangular, subequal; neuropodia with postsetal lobes distally digitiform, ventral ligules subulate. Dorsal and ventral cirri inserted basally, similar in length (Fig. 2b). Median and posterior parapodia with dorsal and median ligules thin, triangular in shape, dorsal ones longer. Dorsal cirri longer than ventral cirri (Fig. 2c, d).

Anterior parapodia with supracicular notosetae slender homogomph spinigers. Supracicular neurosetae heterogomph falcigers with long finely serrated blades, and homogomph spinigers; infracicular neurosetae slender heterogomph spinigers and falcigers, falcigers similar to supracicular ones. Middle notopodia with homogomph falcigers, with short blade and four coarse teeth along edge, crenulate membrane along distal margin of shafts (Fig. 2e); supracicular neurosetae homogomph spinigers, infracicular neurosetae heterogomph falcigers with long blades and fine serrations, similar to those of anterior parapodia (Fig. 2f), and heterogomph falcigers with short blades (Fig. 2g). Posterior parapodia each with notopodial supracicular homogomph falciger.

Supracicular neurosetae homogomph spinigers and one heterogomph falciger; infracicular setae heterogomph spinigers.

Pygidium unknown.

*Remarks.*—*Nereis imajimai*, new species, belongs to a small group of species that possesses short dorsal ligules in posterior parapodia, homogomph falcigers with short, dentate blades, and no paragnaths on Areas I and V. Other species in this group include *N. apalie* Wilson, 1985 and *N. cirriseta* Hutchings & Turvey, 1982, both known from Australia. *N. imajimai* differs from these species in paragnath arrangement. *Nereis apalie* has paragnaths only on Areas IV = 4 right, 2 left and Area VI = 1; *N. cirriseta* has conical paragnaths arranged as: II = 7 in 2 oblique rows, III = 1 minute cone centrally, IV = 9–10 irregularly in oblique crescent shape, VI = 5 in small oval patch, VII–VIII = 7 in single, evenly spaced transverse row.

*Etymology.*—The species is named after Minoru Imajima in recognition of his valuable contributions on the systematics of the Nereididae.

*Type locality.*—Todos Santos Bay, Stn. 26 [116°44'N, 31°47'W], 210 m depth.

*Distribution.*—*Nereis imajimai* is known from Todos Santos Bay, Ensenada, Baja California, Mexico and the west coast of Baja California.

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